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09/925,788	08/09/2001	Neil Brown	A30588US	6201

7590 01/08/2003  
Erik J. Osterrieder  
2603 Augusta Drive, Suite 800  
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EXAMINER

KRECK, JOHN J

ART UNIT	PAPER NUMBER
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3673

DATE MAILED: 01/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/925,788

Applicant(s)

BROWN ET AL.

Examiner

John Kreck

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.105(e).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.
2. The abstract of the disclosure is objected to because it includes legal jargon "means" and includes phrases which can be implied, such as, "The claimed invention is...". Correction is required. See MPEP § 608.01(b).

### *Drawings*

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for making the well/ means for drilling (claims 23 and 24); means for heating (claim 30) and the means for processing (claim 36) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
4. The drawings are objected to because figures 2-4 each include both cross section and plan views. Each figure should include only a single view; it is suggested that each view should be renumbered; e.g. figure 2 renumbered as figures 2A and 2B.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7, 8, 15-17, 35, and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is unclear regarding "the cavity comprises the subterranean material". It is suggested that this be changed to "the cavity is created in the subterranean material"

Claim 15 recites the limitation "the production tube" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 35 recites the limitation "the system occurs at ambient pressure". This limitation is unclear because the word "occurs" implies a process or method. It is suggested that this be changed to "the system operates at ambient pressure".

Claim 36 recites the limitation "after said means for collecting". This limitation is unclear because the word "after" implies a process or method. It is suggested that this be changed to "attached said means for collecting".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-10, 13, 21, and 23-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Huff (U.S. Patent number 4,425,003).

Huff teaches a method for solution mining a subterranean material including injecting a fluid (col. 2, line 40) into an elbow well (see col. 1, line 63 through col. 2, line 4), the fluid forming a mixture with the subterranean material; and collecting the mixture from the elbow well (col. 2, line 52) as called for in claim 1.

Huff also teaches the making the elbow well as called for in claim 3.

Huff also teaches the drilling the elbow well into a bed as called for in claim 4.

Huff also teaches the casing the elbow well as called for in claim 5.

Huff also teaches the injecting into an injection tube (16) as called for in claim 6.

Huff also teaches the creating the cavity (1,2) as called for in claim 7.

Huff also teaches the making the cavity comprises the mixture as called for in claim 8.

Huff also teaches the mixture comprises a solution as called for in claim 9.

Huff also teaches the water as called for in claim 10.

Huff also teaches the collecting the mixture through a production tube (17) as called for in claim 13.

Regarding independent claim 21:

Huff shows a system for solution mining including means for injection fluid into an elbow well, the fluid forming a mixture with subterranean material and means for collecting the mixture as called for in claim 21.

Huff also teaches the means for making the elbow well as called for in claim 23.

Huff also teaches the means for drilling as called for in claim 24.

Huff also teaches the means for casing (15) as called for in claim 25.

Huff also teaches the injection tube as called for in claim 26.

Huff also teaches the subterranean solution as called for in claim 27.

Huff also teaches the water as called for in claim 28.

7. Claims 1, 3-10, 13, 21, 23-28, 37, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Durup, et al. (U.S. Patent number 5,988,760).

Durup teaches a method for solution mining a subterranean material including injecting a fluid into an elbow well the fluid forming a mixture with the subterranean material; and collecting the mixture from the elbow well as called for in claim 1.

Durup also teaches the making the elbow well as called for in claim 3.

Durup also teaches the drilling the elbow well into a bed as called for in claim 4.

Durup also teaches the casing (14) the elbow well as called for in claim 5.

Durup also teaches the injecting into a tube (22) as called for in claim 6.

Durup also teaches the creating the cavity (fig 9) as called for in claim 7.

Durup also teaches the making the cavity comprises the mixture as called for in claim 8.

Durup also teaches the mixture comprises a solution as called for in claim 9.

Durup also teaches the water as called for in claim 10.

Durup also teaches the collecting the mixture through a production tube (see col. 5, lines 51-57 ) as called for in claim 13.

Regarding independent claim 21:

Durup shows a system for solution mining including means for injection fluid into an elbow well, the fluid forming a mixture with subterranean material and means for collecting the mixture as called for in claim 21.

Durup also teaches the means for making the elbow well as called for in claim 23.

Durup also teaches the means for drilling as called for in claim 24.

Durup also teaches the means for casing (14) as called for in claim 25.

Durup also teaches the injection tube as called for in claim 26.

Durup also teaches the subterranean solution as called for in claim 27.

Durup also teaches the water as called for in claim 28.

Regarding independent claim 37:

Durup shows an apparatus for solution mining including an injection tube (22) which has an inner diameter of sufficient size to allow for injection of fluid; and a

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production casing (14) which has an inner diameter sufficient to allow for production of a mixture between the outer surface of the injection tube and the inner surface of the casing as called for in claim 37.

Durup also shows a production tube (see col. 5, lines 51-57) as called for in claim 38.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 19 and 35 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Huff.

Huff fails to disclose any operating pressure; and thus fails to explicitly teach the ambient pressure. Since Huff fails to disclose any specific pressure and fails to teach any pressurizing, then it is assumed that Huff anticipates "ambient" pressure as called for in claims 19 and 35; alternatively, if it is deemed that Huff does not anticipated the ambient pressure, then it would have been obvious to one of ordinary skill in the art at the time of the invention to have operated the Huff method at ambient pressure as called for in claims 19 and 35, in order to eliminate any need for high pressure equipment.



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9. Claims 2; 11, 20, 22, 29, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huff in view of Kube (U.S. Patent number 3,953,073).

Huff teaches all of the limitations of claims 1 and 21, from which these claims depend. Huff fails to teach the trona as called for in claims 2 and 22; the caustic as called for in claims 11 and 29; or the step of processing/means for processing as called for in claims 20 and 36. Huff teaches that the method can be used with "any other soluble mineral" (col. 1, line 51).

Kube teaches that trona is a soluble mineral, and is desirably mined to recover valuable products, such as sodium carbonate; and that a caustic solution is advantageous for solution mining trona (col. 2, lines 41-58) because it improves the solubility of the carbonate/bicarbonate system. Kube further teaches that processing is desirable subsequent to mining (col. 3, line 20) to extract sodium carbonate.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Huff method to solution mine trona; thus having the subterranean material comprising trona as called for in claims 2 and 22; in order to obtain the valuable product of sodium carbonate.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Huff method to solution mine trona, and to have further modified the Huff method/apparatus to also include the fluid comprising a caustic mixture as called for in claims 11 and 29, and as taught by Kube, in order to improve the solubility.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Huff method to solution mine trona, and to have further modified the Huff method/apparatus to also include the step of processing/means for processing as called for in claims 20 and 36, and as taught by Kube, in order to extract the valuable sodium carbonate from the solution.

10. Claims 12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huff in view of Brinton (U.S. Patent number 2,822,158).

Huff teaches all of the limitations of claims 1 and 21, from which these claims depend. Huff fails to teach the heating of fluid or the means for heating.

Brinton teaches that it is sometimes desirable to heat fluid for solution mining, based on the material to be mined (col. 14, lines 72-73).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method/apparatus to have included the step/means of heating the fluid as called for in claims 12 and 30; based on the material to be mined

11. Claims 14-18 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huff in view of Larson, et al. (U.S. Patent number 4,222,611).

Huff teaches all of the limitations of claims 1 and 21, from which these claims depend. Huff fails to explicitly teach the pumping/means for pumping as called for in claims 14 and 31; the pump lifting through the tube as called for in claim 15; the pump in

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the elbow well as called for in claim 18; and the means for placing the pump as called for in claim 32.

It is notoriously conventional in the art of solution mining to use pumps to pump fluid to the surface; this is shown by Larson (col. 2, lines 2-6). Larson shows a pump within a well, and thus inherently teaches the means for placing a pump in a well; pumps are often placed within wells because pumps operate more efficiently with short suction lengths.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method to have included pumping the mixture as called for in claim 14 or to have the means for pumping as called for in claim 31, in order to help deliver the mixture to the surface.

With regards to claim 15, Larson teaches that the pump lifts the fluid through the production tube; thus it would have been further obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method to have a pump lift fluid through the production tube as called for in claim 15, in order to help deliver the mixture to the surface.

With regards to claims 16 and 17; Huff teaches the delivering to a collection location at the surface.

With regards to claim 18, Larson teaches that the pump is located in the well, thus it would have been further obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method to have placed a pump in the elbow well as called for in claim 18, in order to help deliver the mixture to the surface.

With regards to claim 32, Larson teaches that the pump is located in the well, thus it would have been further obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method to have included means for placing a pump in the elbow well as called for in claim 32, in order to help deliver the mixture to the surface.

With regards to claims 33 and 34; Huff teaches the delivering to a collection location at the surface.

12. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Durup in view of Larson.

Durup teaches all of the limitations of claims 38, from which this claim depends. Durup fails to explicitly teach the pump as called for in claim 39.

It is notoriously conventional in the art of solution mining to use pumps to pump fluid to the surface; this is shown by Larson (col. 2, lines 2-6).

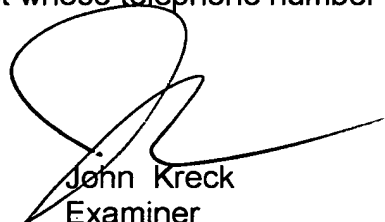
It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Durup system to have included a pump connected to the production tube, in order to help deliver the mixture to the surface.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Haworth (U.S. Patent number 2,682,396) shows a similar method and apparatus for solution mining.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kreck whose telephone number is (703)308-2725. The examiner can normally be reached on M-F 6:00 am - 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on (703)308-2978. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3597 for regular communications and (703)305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-4177.



John Kreck  
Examiner  
Art Unit 3673

JJK  
January 6, 2003